

# Journal of Materials Chemistry C

Materials for optical, magnetic and electronic devices

[rsc.li/materials-c](https://rsc.li/materials-c)

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

## IN THIS ISSUE

ISSN 2050-7526 CODEN JMCCCX 12(6) 1911-2266 (2024)



### Cover

See Yuichi Hirai, Rémi Métivier, Clémence Allain *et al.*, pp. 1952–1957.  
Image reproduced by permission of Yuichi Hirai from *J. Mater. Chem. C*, 2024, 12, 1952.

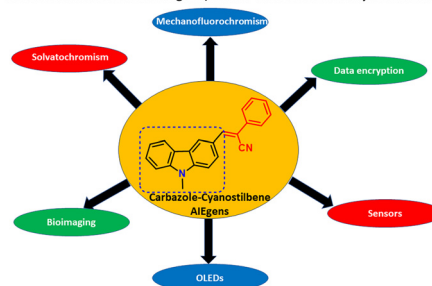
## REVIEW

1923

### Symphony of light: AIE and MFC in carbazole-based cyanostilbenes

A. Afrin and P. Chinna Ayya Swamy\*

"Molecular Brilliance: Unveiling AIE/MFC in Carbazole-Based Cyanostilbenes"

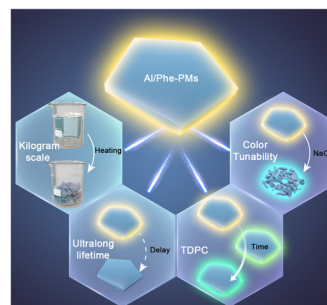


## COMMUNICATION

1945

### Achieving time-dependent and color-tunable ultralong room temperature phosphorescence through sodiation reconfiguration for dynamic 5D information encryption

Li Ya Liang, Ya Ting Gao, Shuai Chang, Jian Lv, Bin Bin Chen\* and Da Wei Li\*



# EES Catalysis

GOLD  
OPEN  
ACCESS

## Exceptional research on energy and environmental catalysis

### Open to everyone. Impactful for all

[rsc.li/EESCatalysis](https://rsc.li/EESCatalysis)

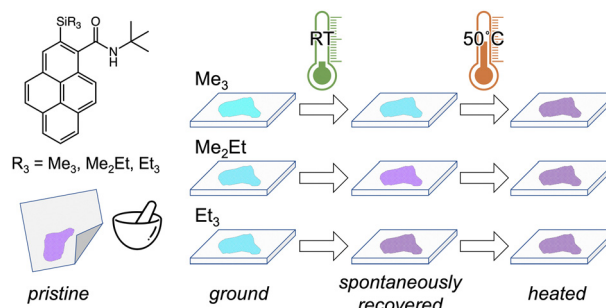
Fundamental questions  
Elemental answers



1952

### Mechanofluorochromism and self-recovery of alkylsilylpyrene-1-carboxamides

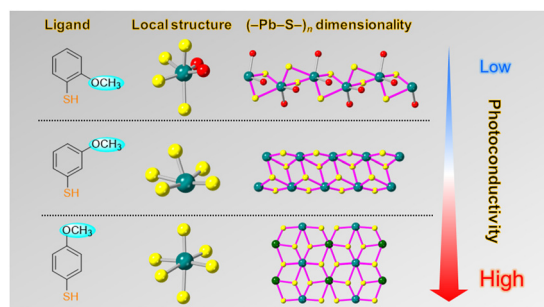
Yuichi Hirai,\* Anna Wrona-Piotrowicz, Janusz Zakrzewski, Magdalena Ciechańska, Takahito Ohmura, Takashi Takeda, Takayuki Nakanishi, Rémi Métivier\* and Clémence Allain\*



1958

### Impact of substituent position on crystal structure and photoconductivity in 1D and 2D lead(II) benzenethiolate coordination polymers

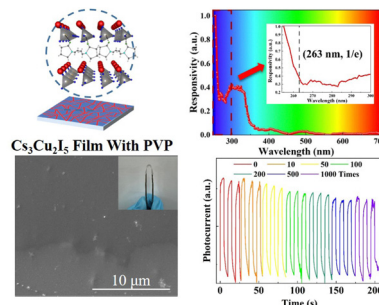
Ryohei Akiyoshi,\* Akinori Saeki, Kazuyoshi Ogasawara and Daisuke Tanaka\*



1965

### Polymer-assisted crystal growth regulation and defect passivation for high-performance flexible solar-blind photodetectors based on copper-based halides

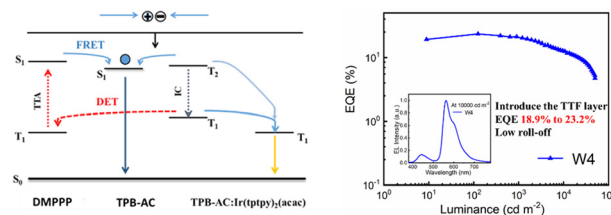
Chengjun Liu, Yuyi Zhang, Lixi Wang, Jianhua Chang, Qing Li, Xiaobing Zhang, Byung Seong Bae, Omolola Esther Fayemi, Xiaobao Xu, Jianguo Pan,\* Jing Chen\* and Wei Lei\*



1972

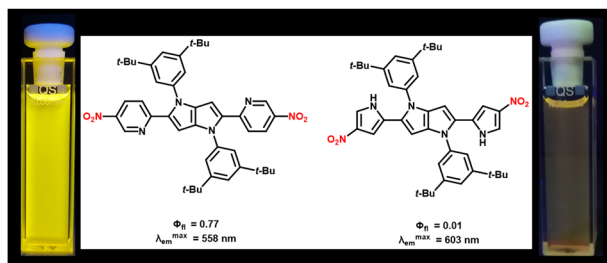
### High-efficiency and low-efficiency roll-off fluorescence/phosphorescence hybrid white organic light-emitting diodes based on AIEgens with hot exciton property by strategically managing triplet excitons

Guangjian Gao, Pengbo Han, Xianfeng Qiao, Yanfeng Dai, Qian Sun, Dezhi Yang, Anjun Qin,\* Ben Zhong Tang and Dongge Ma\*





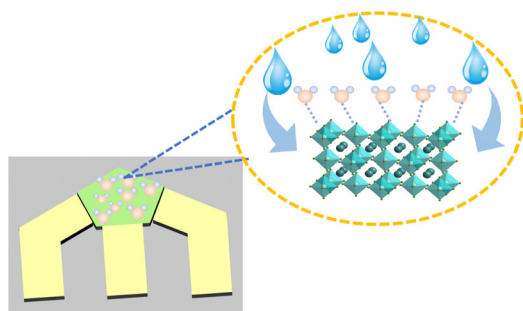
1980



### The interplay of intersystem crossing and internal conversion in quadrupolar tetraarylpyrrolo-[3,2-*b*]pyrroles

Krzysztof Górski, Damian Kusy, Shuhei Ozaki, Marzena Banasiewicz, Rashid Valiev, Smruti Ranjan Sahoo, Kenji Kamada,\* Glib Baryshnikov\* and Daniel T. Gryko\*

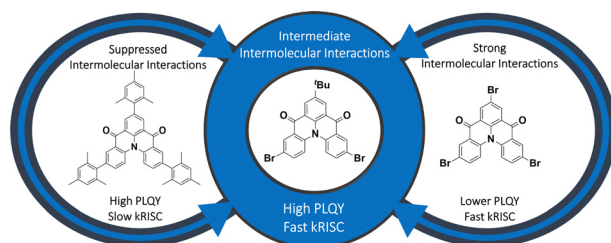
1988



### Effects of halogen elements on a humidity sensor based on a thin film bulk acoustic wave resonator incorporated with $\text{Cs}_3\text{Bi}_2\text{X}_9$ ( $\text{X} = \text{Cl}, \text{Br}, \text{I}$ ) perovskites

Lishuai Zhao, Peidong Ouyang, Xinyan Yi and Guoqiang Li\*

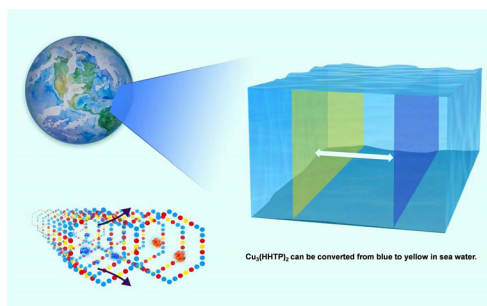
1996



### Peripheral halogen atoms in multi-resonant thermally activated delayed fluorescence emitters: the role of heavy atoms in intermolecular interactions and spin orbit coupling

Hector Miranda-Salinas, Jingxiang Wang, Andrew Danos, Tomas Matulaitis, Kleitos Stavrou,\* Andrew P. Monkman\* and Eli Zysman-Colman\*

2007



### Electrochromic electrically conductive $\text{Cu}_3(\text{HHTP})_2$ films with adaptation to diverse and low-concentration water

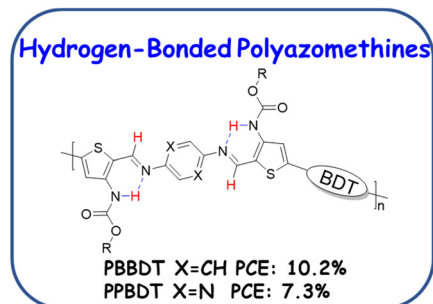
Yongsheng Liu, Xiaoyu Zhang, Ran Li, Ziqiu Lu, Xilu Wu, Chengyi Hou, Qinghong Zhang, Yaogang Li, Kerui Li\* and Hongzhi Wang\*



2016

## Hydrogen-bonded polyazomethines for efficient organic solar cells

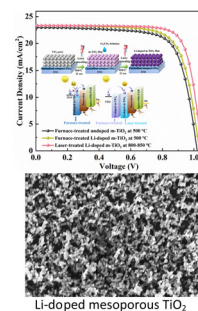
Bo Zhang, Yuanyuan Wang, Kaiwen Lin, Yinhua Zhou\* and Qing Zhang\*



2025

## Laser processing of Li-doped mesoporous TiO<sub>2</sub> for ambient-processed mesoscopic perovskite solar cells

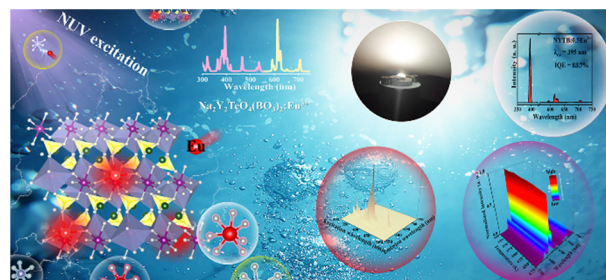
Hongbo Mo, Qian Chen,\* Dong Wang, Wei Guo, Dongxu Cheng, Yang Sha, Muhamad Z. Mokhtar, Zhenyu Jia, Janet Jacobs, Andrew G. Thomas, Lin Li, Zhu Liu\* and Richard J. Curry\*



2037

## Layered structure-induced quenching delay toward highly efficient and thermally stable red emission in Eu<sup>3+</sup>-activated borotellurate phosphors

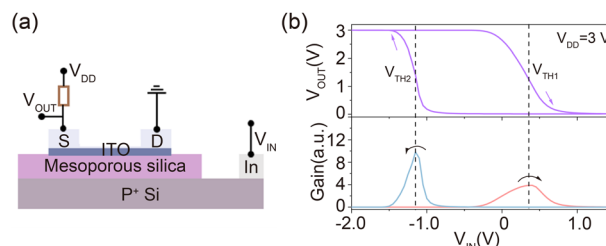
Yuefei Xiang, Hongzhi Zhang,\* JunPeng Li, Hong Li, Tongsheng Yang, Canyuan Liao, Heyun Zhao and Jing Zhu\*



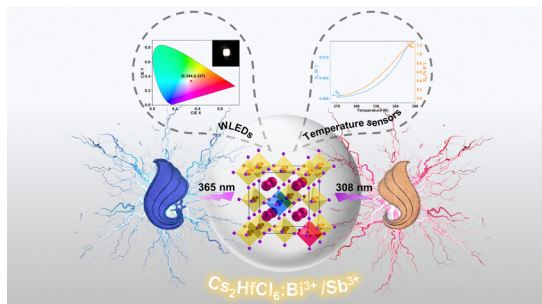
2048

## A reverse Schmitt trigger with an adjustable hysteresis window implemented by mesoporous silica electrolyte-gated transistors

Linzi Liang, Kekang Liu, Zhiyuan Luo, Zhengdong Jiang, Qichang Hu and Yanghui Liu\*



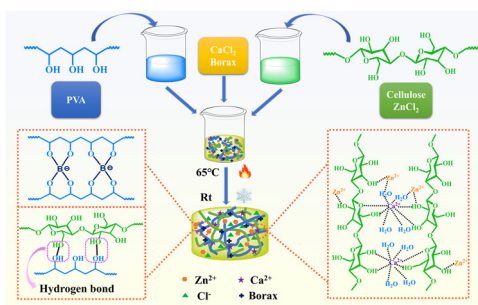
2053



### Bi<sup>3+</sup>/Sb<sup>3+</sup> co-doped Cs<sub>2</sub>HfCl<sub>6</sub> vacancy-ordered double perovskites for multifunctional optoelectronic applications

Zixuan Huang, Jinju Zheng,\* Hui Fu, Jialiang Jiang, Zilong Li, Chunhong Gu, Zhentao Du, Yang Yang, Weiyu Yang and Jialong Zhao\*

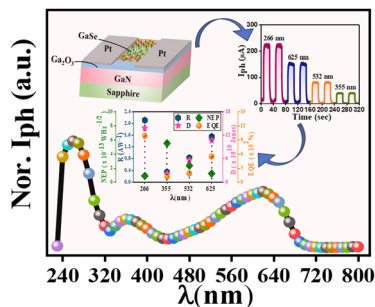
2063



### Preparation of PVA/cellulose composite hydrogel electrolytes based on zinc chloride-dissolved cellulose for flexible solid-state capacitors

Ru Zhang, Chengfeng Wu,\* Xuyan Liao, Axi Luo, Yidan Jing,\* Ningya Yu, Shengpei Su, Xiaomin Zhang,\* Jin Zhu and Guobo Deng

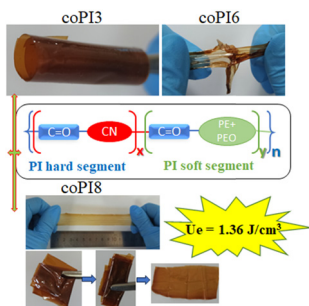
2073



### A nanoflower-like GaSe/ $\beta$ -Ga<sub>2</sub>O<sub>3</sub> based heterostructure for highly efficient self-powered broadband photodetectors

Urvashi Varshney, Anuj Sharma, Aditya Yadav, Preeti Goswami and Govind Gupta\*

2084



### Tailoring the properties of semi-aromatic copolyimides through structural manipulation towards energy-storage applications

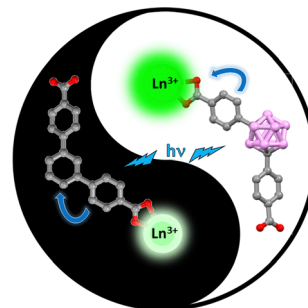
Irina Butnaru,\* Adriana-Petronela Chiriac, Mihai Asandulesa, Codrin Tugui, Iuliana Stoica and Mariana-Dana Damaceanu



2101

### Rationalizing the carborane *versus* phenyl-driven luminescence in related dicarboxylic ligands and their antenna effect for their $\text{Eu}^{3+}$ and $\text{Tb}^{3+}$ metal–organic frameworks: a combined experimental and computational study

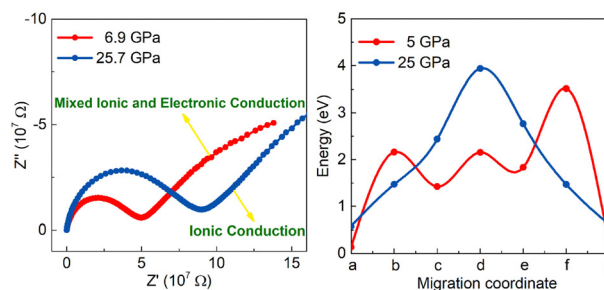
Zhen Li, Claudio Roscini, Rosario Núñez, Francesc Teixidor, Clara Viñas, Eliseo Ruiz\* and José Giner Planas\*



2110

### Pressure effects on the ionic transport properties of $\text{LiNH}_2$

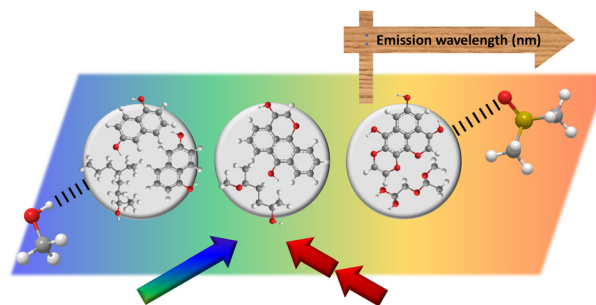
Jia Wang, Hao Liu, Li Wang, Min Cao, Xin Zhang, Chunxiao Gao and Yonghao Han\*



2117

### Revealing two chemical strategies to tune bright one- and two-photon excited fluorescence of carbon nanodots

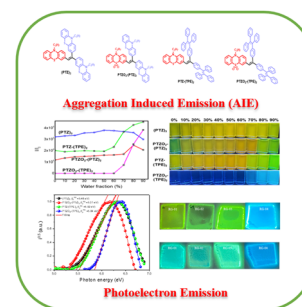
Sebastian G. Mucha, Lucyna Firlej, Filip Formalik, Jean-Louis Bantignies, Eric Anglaret, Marek Samoć and Katarzyna Matczyszyn\*



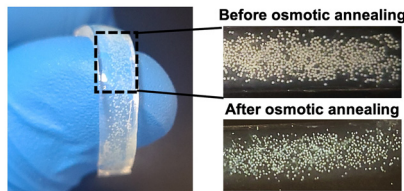
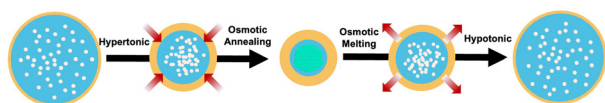
2134

### Phenothiazine and phenothiazine sulfone derivatives: AIE, HTMs for doping free fluorescent and multiple-resonance TADF OLEDs

Ramakant Gavale, Melika Ghasemi, Faizal Khan, Dmytro Volyniuk, Juozas Vidas Grazulevicius and Rajneesh Misra\*



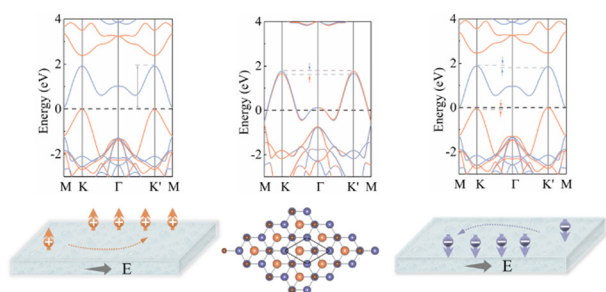
2148



### Adaptive coloration enabled by the reversible osmotic annealing of chromatophore-like microcapsules

Jae-Hyun Kim, Ji-Young Lee, Jaekyoung Kim, Zhe Gong, Daniel J. Wilson, Leila F. Deravi\* and Daeyeon Lee\*

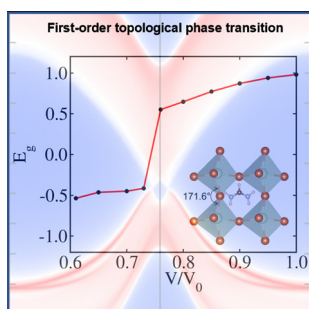
2156



### Controllable dual-polarization valley physics in the strain-engineered 2D monolayer of VC<sub>2</sub>N<sub>4</sub>

Chengan Lei, Shiyu Cao, Zelong Gong, Xinru Li, Yandong Ma, Jian Gao, Jianqiang Bi, Rajeev Ahuja and Zhao Qian\*

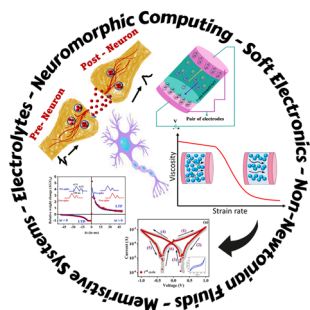
2165



### Strain-driven topological quantum phase transition in (pseudo)cubic (mixed)-Cs/MA/FA halide perovskites

Ankita Phutela,\* Sajjan Sheoran, Deepika Gill and Saswata Bhattacharya\*

2173



### Unlocking the resistive switching in Acacia Senegal-based electrolyte for neuromorphic computation

Aziz Lokhandwala, Parth Thakkar, Jeny Gosai, Suvik Oza and Ankur Solanki\*

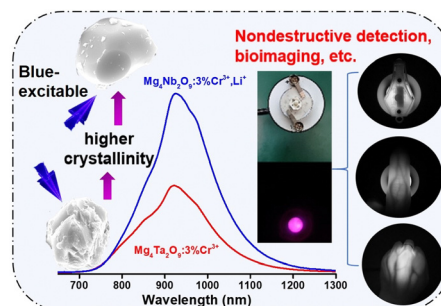




2184

## Broadband short-wave infrared $\text{Mg}_4\text{Nb}_2\text{O}_9\text{:Cr}^{3+},\text{Li}^+$ phosphor for nondestructive safety detection and biomedical imaging

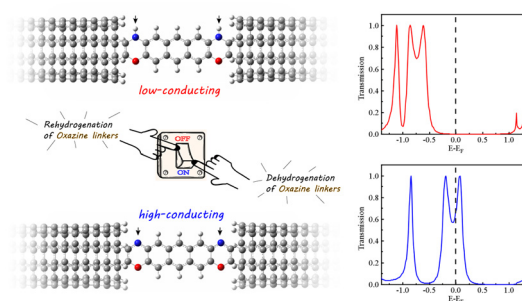
Qingyang Ding, Jincheng Wu, Dechao Yu,\* Xinxin Han, Yayun Zhou, Tiantian Shen, Yunfeng Ma,\* Songlin Zhuang and Dawei Zhang



2194

## Oxazine: an anchoring group serving as functional kernels to construct single-molecule switches

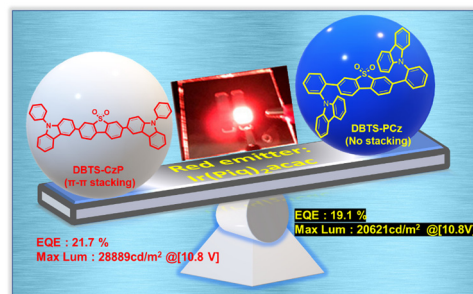
Shi Li, Yuxuan Jiang, Yudi Wang, Dongying Lin, Haoyang Pan, Yongfeng Wang, Stefano Sanvito and Shimin Hou\*



2203

## Perceiving the influence of phenyl-carbazole isomers on sulfone/thioxanthone-based D–A–D hosts: realizing efficient red-phosphorescent OLEDs

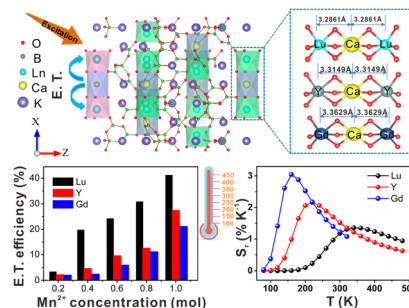
Premkumar Gnanasekaran, Yi-Ting Chen, Yun-Tzu Tseng, Kuan-Yu Su, Yu-Ting Lin, Tsz Chung Yiu, Chih-Hao Chang\* and Yuan Jay Chang\*



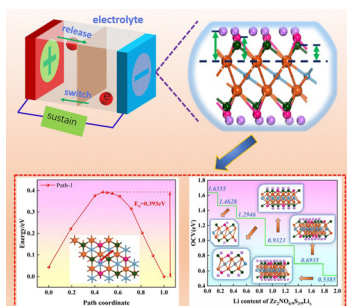
2216

## Realizing a broad-scope and high-sensitivity optical thermometer based on dual-emission centers with structure confinement effect-related energy transfer

Shixiang Huang, Liuhan Yi, Feng Zhang,\* Xiansheng Liu, Chao Li, Mengzhu Long and Yuhua Wang



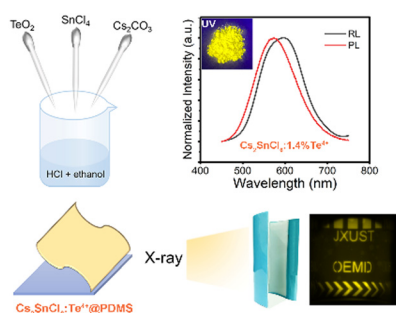
2227



### First-principles study of the effect of O and S functional groups on the lithium storage properties of $Zr_2N$ materials

Xuefeng Lu, Jupeng Qi, Junqiang Ren, Junchen Li, Hongtao Xue, Fuling Tang and Xin Guo\*

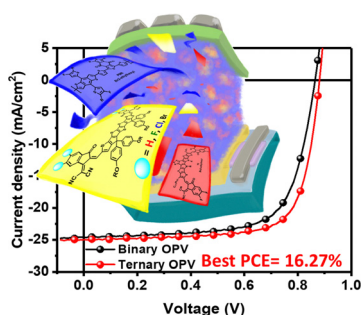
2241



### $Te^{4+}$ -doped $Cs_2SnCl_6$ scintillator for flexible and efficient X-ray imaging screens

Mengyao Wang, Xiaofei Qing, Tianyun Du, Chuanli Wu and Xiuxun Han\*

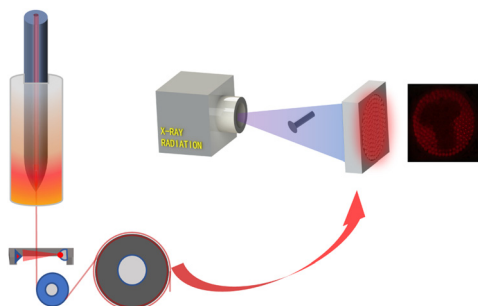
2247



### Dicyclopentadithienothiophene-based non-fullerene acceptors for ternary blend organic photovoltaics

Shakil N. Afraj, Bing-Huang Jiang, Yu-Wei Su, Chien-Hung Yang, Hui-Shan Shih, Arulmozhi Velusamy, Jen-Shyang Ni, Yamuna Ezhumalai, Ting-Yu Su, Cheng-Liang Liu, Shuhelin Yau, Chih-Ping Chen\* and Ming-Chou Chen\*

2258



### Plastic scintillation fiber with europium complexes for low-dose X-ray detection and long-distance imaging

Gang Ren, Zhouyuanhang Wang, Yan Kuai, Zhigang Cao, Feng Xu, Yu Liu, Kang Xie, Siqi Li,\* Benli Yu and Zhijia Hu\*

